

Claims

What is claimed is:

1. A method of presenting a graphical user interface for a finite element analysis application on an electronic display device, comprising:
launching a parent graphics window on said electronic display device for displaying an image; and
attaching a property input window to said parent graphics window for displaying and manipulating settings and attributes of an entity selected within said parent graphics window, wherein first interface element of said property input window includes at least one of said active entity name/ID field and entity graphic button and interval count field and interval size field and interval set field and mesh scheme field and smooth scheme field.
2. The method of claim 1 further comprising attaching a task window to said parent graphics window for geometry creation, manipulation, and meshing of said entity within said parent graphics window, wherein a first interface element of said task window having a first tab identifier includes at least one of a first iconic button, adapted to providing creation capabilities of at least one of a vertex entity and curve entity and surface entity and volume entity and brick entity and sphere entity and cylinder entity and pyramid entity and torus entity and frustum entity, and a second iconic button adapted to providing modification capabilities of entities by at least one of webcutting and imprinting and cleaning and combining and boolean operations and healing and positioning and scaling and separating and splitting and copying and merging and tweaking.
3. The method of claim 1 further comprising attaching a textual input window to said parent graphics window wherein first interface element of said

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textual input window includes a command line for entry of textual commands for said finite element analysis application execution.

4. The method of claim 1 further comprising attaching an entity tree window to said parent graphics window for displaying a graphical hierarchical representation of the parent child relationship of said entity selected within said graphics window or said entity tree window, wherein first interface element of said entity tree window includes parent and child entity names/IDs, ID icons, and mesh status check boxes.

5. The method of claim 1 further comprising attaching a textual output window to said parent graphics window wherein first interface element of said textual output window includes an output line having textual feedback of activity executed by said finite element analysis application.

6. The method of claim 2 wherein said task window includes an advanced selection dialogue interface for selection of said entity in said graphics window that is particularly difficult to select yet is required for finite element analysis application execution and wherein said advanced selection dialogue interface includes a list box for displaying a current list of at least one said entity available for a particular FEA application command, and a required-entity field for displaying the number and type of said entity required for said finite element analysis application execution.

7. The method of claim 2 further comprising outputting a filter picking dialog interface window from said task window for filtering entities to parse out entities that match or do not match said entity characteristics, wherein said filter picking dialog interface window includes a filter-criteria field for including or excluding filtered entities and performing specified actions on said

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including or excluding filtered entities, and a register list box for listing at least one registered filter for limiting subsequent selection operations in said graphics window to those that meet said filter criteria.

8. The method of claim 7 wherein said registered filter is deactivated, so as to not limit said subsequent selection operations in said graphics window, while remaining a registered filter in said filter picking dialog interface window.

9. A computer-readable medium having computer-executable instructions for performing the steps recited in claim 1.

10. An apparatus for presenting a graphical user interface for a finite element analysis application on an electronic display device, the apparatus comprising a computer programmed to:

launch a parent graphics window on said electronic display device for displaying an image; and

attach a property input window to said parent graphics window for displaying and manipulating settings and attributes of an entity selected within said parent graphics window, wherein first interface element of said property input window includes at least one of said active entity name/ID field and entity graphic button and interval count field and interval size field and interval set field and mesh scheme field and smooth scheme field.

11. The apparatus of claim 10 further comprising a computer programmed to:

attach a task window to said parent graphics window for geometry creation, manipulation, and meshing of said entity within said parent graphics window, wherein a first interface element of said task window having a first tab

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identifier includes at least one of a first iconic button, adapted to providing creation capabilities of at least one of a vertex entity and curve entity and surface entity and volume entity and brick entity and sphere entity and cylinder entity and pyramid entity and torus entity and frustum entity, and a second iconic button adapted to providing modification capabilities of entities by at least one of webcutting and imprinting and cleaning and combining and boolean operations and healing and positioning and scaling and separating and splitting and copying and merging and tweaking.

12. The apparatus of claim 10 further comprising a computer programmed to:

attach a textual input window to said parent graphics window wherein first interface element of said textual input window includes a command line for entry of textual commands for said finite element analysis application execution.

13. The apparatus of claim 10 further comprising a computer programmed to:

attach an entity tree window to said parent graphics window for displaying a graphical hierarchical representation of the parent child relationship of said entity selected within said graphics window or said entity tree window, wherein first interface element of said entity tree window includes parent and child entity names/IDs, ID icons, and mesh status check boxes.

14. The apparatus of claim 10 further comprising a computer programmed to:

attach a textual output window to said parent graphics window wherein first interface element of said textual output window includes an output

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line having textual feedback of activity executed by said finite element analysis application.

15. The apparatus of claim 11 wherein said task window includes an advanced selection dialogue interface for selection of said entity in said graphics window that is particularly difficult to select yet is required for finite element analysis application execution and wherein said advanced selection dialogue interface includes a list box for displaying a current list of at least one said entity available for a particular FEA application command, and a required-entity field for displaying the number and type of said entity required for said finite element analysis application execution.

16. The apparatus of claim 11 further comprising a computer programmed to:

output a filter picking dialog interface window from said task window for filtering entities to parse out entities that match or do not match said entity characteristics, wherein said filter picking dialog interface window includes a filter-criteria field for including or excluding filtered entities and performing specified actions on said including or excluding filtered entities, and a register list box for listing at least one registered filter for limiting subsequent selection operations in said graphics window to those that meet said filter criteria.

17. The apparatus of claim 16 wherein said registered filter is deactivated, so as to not limit said subsequent selection operations in said graphics window, while remaining a registered filter in said filter picking dialog interface window.

18. A method of presenting a graphical user interface tabbed-based menuing system on an electronic display device, comprising:

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launching a parent window on said electronic display device for displaying an image; and

attaching a child window to said parent window wherein said child window includes a first interface element having a first tab identifier and at least one iconic button wherein selection of said at least one iconic button associated with said first interface element outputs a second interface element having a second tab identifier wherein said second interface element overlaps said first interface element except for said first tab identifier.

19. The method of claim 18, further comprising alternating between said first interface element and said second interface element by selecting said first tab identifier and said second tab identifier, respectively.

20. The method of claim 18, wherein said first tab identifier and said second tab identifier are oriented at bottom of said first interface element and said second interface element, respectively.

21. A computer-readable medium having computer-executable instructions for performing the steps recited in claim 18.

22. An apparatus for presenting a graphical user interface tabbed-based menuing system on an electronic display device, the apparatus comprising a computer programmed to:

launch a parent window on said electronic display device for displaying an image; and

attach a child window to said parent window wherein said child window includes a first interface element having a first tab identifier and at least one iconic button wherein selection of said at least one iconic button associated

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with said first interface element outputs a second interface element having a second tab identifier wherein said second interface element overlaps said first interface element except for said first tab identifier.

23. The apparatus of claim 22, further comprising a computer programmed to:

alternate between said first interface element and said second interface element by selecting said first tab identifier and said second tab identifier, respectively.

24. The apparatus of claim 22, wherein said first tab identifier and said second tab identifier are oriented at bottom of said first interface element and said second interface element, respectively.

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